

## IN THE CLAIMS

Please amend the claims as follows:

1. (currently amended) A method ~~of determining a distance between a transmitting station and a receiving station comprising the steps of:~~  
determining a characteristic parameter describing ~~the~~ line-of-sight conditions of ~~the radio~~ a radio propagation environment of a base ~~the receiving station in a mobile telecommunications system, wherein the~~ wherein a characteristic parameter describes excess path lengths caused by obstacles in the environment by means of one of a number of discrete levels;  
measuring at least one feature of a signal ~~received from the transmitting transmitted between a mobile station and the at the receiving base~~ station, said feature being such that it can be used for determination of ~~the distance~~ a distance between the ~~transmitting mobile~~ station and the ~~receiving base~~ station; and  
computing the distance between the ~~transmitting mobile~~ station and the ~~receiving base~~ station using said measured signal feature and the characteristic parameter describing the line-of-sight conditions of the ~~receiving station~~ base station; and  
determining a current geographical location of the mobile station.
2. (canceled)
3. (currently amended) A method according to claim 1, further comprising:  
determining at least one further distance between the ~~transmitting mobile~~ station and at least one further ~~receiving base~~ station having a characteristic parameter describing ~~the~~ line-of-sight conditions of ~~the radio~~ a radio propagation environment of the at least one further ~~receiving base~~ station; and  
determining the current geographical location of the ~~transmitting mobile~~ station based on the determined distances between the ~~transmitting mobile~~ station and said at least two ~~receiving base~~ stations.
4. (canceled)

5. (currently amended) A method according to claim 1, wherein said at least one feature comprises at least travel time of the signal between the ~~transmitting mobile station~~ and ~~receiving stations~~ the base station.
6. (currently amended) A method according to ~~claim 1~~ claim 3, wherein said at least one feature comprises at least signal travel time differences between the ~~transmitting mobile station~~ and ~~receiving stations~~ the base station.
7. (currently amended) A method according to claim 1, wherein said at least one feature comprises at least strength of the ~~received signal~~ transmitted between the mobile station and the base station.
8. (currently amended) A method according to claim 1, wherein said at least one feature comprises quality of the ~~received signal~~ transmitted between the mobile station and the base station.
9. (currently amended) A method according to claim 1, comprising use of a weighted least square method for determination of distances between the ~~receiving base station~~ and ~~transmitting stations~~ the mobile station, wherein the used weighting matrix is the inverse of an error covariance matrix.
10. (currently amended) A method according to claim 1, comprising ~~steps of~~:  
defining ~~the~~ radio propagation environments for several stations; and  
classifying the stations in different radio propagation environment classes;  
wherein the characteristic parameter is based on the class of the station.
11. (currently amended) A method according to claim 1, wherein the data for the characteristic parameter is stored and processed in a location service node implemented ~~in a telecommunications~~ in the mobile telecommunications system.
12. (canceled)
13. (currently amended) A method according to claim 1, wherein ~~the determination of said determining~~ the characteristic parameter comprises ~~steps of~~:

determining the current geographical location of ~~at least one of the stations by means which are said mobile station in a way that is~~ external to the telecommunications system; and

inputting the results of the determination to the mobile telecommunications system.

14. (currently amended) A method according to claim 13, comprising use of a satellite based positioning system for ~~the determination of said determining the~~ current geographical location of ~~at least one of the stations~~ the mobile station.

15. (currently amended) Apparatus ~~An arrangement for determining a distance between a transmitting station and a receiving station~~, comprising:

storage ~~means~~ device for storing a characteristic parameter describing the line-of-sight conditions of ~~the radio~~ a radio propagation environment of ~~the receiving a~~ base station,

wherein the characteristic parameter describes excess path lengths caused by obstacles in the radio propagation environment by means of one of a number of discrete levels;

measurement ~~means~~ device for measuring a feature of a signal transmitted ~~from between the mobile transmitting station to the and the receiving base station for~~ determination of ~~the distance a distance~~ between the ~~transmitting mobile~~ station and the ~~receiving base~~ station; and

a controller for receiving ~~the outcome an outcome~~ of said measuring ~~measurement and~~ for defining the distance between the ~~transmitting mobile~~ station and the ~~receiving base~~ station based on the basis of the outcome of the measurement said measuring and said characteristic parameter, and for determining a current geographical location of the mobile station.

16. (canceled)

17. (currently amended) The apparatus ~~An arrangement according to claim 16 claim 15~~, comprising:

at least one further ~~receiving base~~ station having a substantially fixed location and provided with a characteristic parameter describing ~~the line-of-sight conditions of~~

~~the radio~~ a radio propagation environment of said at least one further ~~receiving-base~~ station;

~~means a device~~ for measuring a feature of a signal transmitted ~~from-between~~ the ~~transmitting-mobile~~ station ~~to-the-at~~ and to at least one further ~~receiving-base~~ station for determination of ~~the distance~~ a distance between the ~~transmitting-mobile~~ station and the at least one further ~~receiving-base~~ station;

wherein the ~~arrangement-apparatus~~ is such that the outcome of the measurement of the feature of the signal transmitted to the at least one further ~~receiving-base~~ station is also used when determining the location of the ~~transmitting-mobile~~ station.

18. (canceled)

19. (currently amended) ~~The apparatus~~ An arrangement according to claim 15, wherein different radio propagation environments of different stations are classified in different radio propagation environment classes and the characteristic parameter is based on the class of the station.

20. (currently amended) ~~The apparatus~~ An arrangement according to claim 15, wherein the feature of the signal is based on one or several of the following: travel time of the signal between the ~~transmitting-mobile station~~ and ~~receiving-stations~~ the ~~base station~~, signal travel time difference between the ~~transmitting-mobile station~~ and ~~receiving-stations~~ the ~~base station~~, the strength of the ~~received~~ signal, the quality of the ~~received~~ signal.

21. (canceled)

22. (currently amended) ~~The apparatus~~ An arrangement according to claim 21, wherein the ~~receiving-mobile~~ station comprises a sector antenna.

23. (currently amended) A location server for use in a telecommunications system for provision of location data of a mobile station having a radio connection with at least one base station of the telecommunications system, comprising:

means for receiving measurement data from the telecommunications system concerning a feature of the connection between the mobile station and said at least one base station for determination of the distance between the mobile station and the base station;

storage means for storing a characteristic parameter describing the line-of-sight conditions of the radio propagation environment of said at least one base station, wherein the characteristic parameter describes excess path lengths caused by obstacles in the environment by means of one of a number of discrete levels;

control means for defining the distance between the mobile station and said at least one base station on the basis of the received measurement data and said characteristic parameter and for determining a current geographical location of the mobile station.

24. (currently amended) ~~An arrangement in a telecommunications system for creating and/or updating data concerning the radio propagation environment of a station of the telecommunications system, comprising:~~

~~a first station in a telecommunications system;~~

~~a second station for communicating by radio with the first station in the telecommunications system;~~

~~means for defining the said arrangement configured to define a current geographical location of the first station with by means of a source of location information that is external to the telecommunications system; system, to determine a feature of a radio signal received by one of the stations from other stations, and to calculate~~

~~determining means for determining a feature of a radio signal received by one of the stations from other stations; and~~

~~calculating means for calculating a parameter describing the line-of-sight conditions of the radio a radio propagation environment by means of according to the current geographical location of the first station and the said determined feature, wherein the parameter describes excess path lengths caused by obstacles in the environment by means of with one of a number of discrete levels.~~

25. (currently amended) An arrangement according to claim 24, ~~comprising means for receiving configured to receive~~ signals from a satellite based positioning system.

26. (currently amended) An arrangement according to claim 24, ~~comprising means for determining~~ configured to determine if an update of the data concerning the radio propagation environment is required.

27. (currently amended) An arrangement according to claim 24, wherein the first station comprises a portable device ~~comprising the determining means for determining the feature of the radio signal.~~